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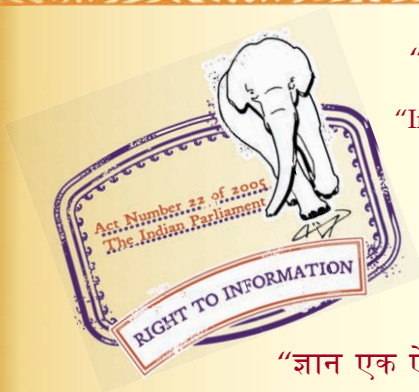
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IS 3262 (1987): Pilot Lead Line [TXD 9: Cordage]



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“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SPECIFICATION FOR
PILOT LEAD LINE
(*First Revision*)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR PILOT LEAD LINE

(First Revision)

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Indian Standard
**SPECIFICATION FOR
PILOT LEAD LINE**
(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 January 1987, after the draft finalized by the Cordage Sectional Committee had been approved by the Textile Division Council.

0.2 First published in 1965, this standard has now been revised to make it up-to-date on the basis of the experience gained during its use.

In the present revision the following major changes have been introduced:

- a) Breaking load test method has been modified,
- b) Requirement of 'Pitch or maximum length of 10 lays' has incorporated, and
- c) Sampling clause has been modified.

Opportunity has also been availed of to modify certain other clauses and to bring this specification in line with other specifications for cordage.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value.

1. SCOPE

1.1 This standard prescribes the requirements for pilot lead line of 25 mm size.

*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 3871-1984* shall apply.

3. ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTING

3.1 The test shall normally be carried out under prevailing atmospheric conditions. In all cases of dispute, however, tests shall be carried out on samples which have been conditioned for 24 hours in an atmosphere at 65 ± 2 percent relative humidity and $27 \pm 2^\circ\text{C}$ temperature (see IS : 6359-1971†). Where practicable tests shall be made in the standard conditioning atmosphere otherwise, they shall be made as quickly as possible but not exceeding 15 minutes of removal of the test pieces from the conditioning atmosphere.

4. MANUFACTURE

4.1 Jute Fibre — The jute fibre used for the manufacture of pilot lead line shall be true to its type, unadulterated and free from defects and shorts. It shall be well carded.

4.2 Basic Yarn — Jute yarn, 276 tex (or 8 grist‡), used for making pilot lead line shall be well and evenly spun. It shall be spun with 'Z' twist.

4.3 Three-Ply Yarn — Three basic yarns (see 4.2) shall be twisted together in the 'S' direction to form a 3-ply yarn. The yarn shall be well and evenly spun.

4.4 Strands — Five 3-ply yarns shall be laid together in 'S' direction to form a strand. The strands shall have 'Z' lay. The strands shall be well formed and free from splices, grooves and sunken yarns.

4.5 Primary Cord — Two strands shall be twisted together in the 'Z' direction to form a primary cord. It shall be polished.

4.6 Pilot Lead Line — Three primary cords shall be laid in the 'S' direction without a core. The pilot lead line shall be well laid and free from splices, joints and defects.

4.7 For the purpose of dressing the fibre, lubricating material not exceeding 5 percent of the mass of the line in a package may be used.

*Glossary of terms relating to fibre ropes and cordage (*first revision*).

†Method for conditioning of textiles.

‡Grist is equal to the number of pounds per spindle of 14 400 yards.

No weighting or loading material other than the minimum necessary for polishing the primary cords (*see* 4.5) shall be used.

5. REQUIREMENTS

5.1 Length of Line in a Package — The length of pilot lead line in each package shall be 55 m unless otherwise agreed to between the buyer and the seller. The length of line a package shall be determined as per the method given in IS : 7071 (Part 2)-1974*.

5.2 Change of Length — Pilot lead line when tested as per the method given in Appendix A shall not expand or contract by more than 0.7 percent.

5.3 Other Requirements — Pilot lead line shall also conform to the requirements of Table 1.

TABLE 1 REQUIREMENTS FOR PILOT LEAD LINE

SIZE DESIGNATION OR CIRCUMFERENCE	LINEAR DENSITY	BREAKING STRENGTH MINIMUM	PITCH OR MAXIMUM LENGTH OF 10 LAYS
(1)	(2)	(3)	(4)
mm	ktex	N*	cm
25	40	2 450	26.5
TOLER- RANCE	+ 2 mm — 0	± 5 percent	—
METHOD OF TEST	IS : 7071 (Part 3) - 1974†	IS : 7071 (Part 2) - 1974†	Appendix B
			IS : 7071 (Part 3) - 1974†

*1 N = 0.102 kgf approximately.

†Methods of physical test for ropes and cordages: Part 3 Diameter, circumference and lay.

‡Methods of physical test for ropes and cordages: Part 2 Mass, length and linear density.

6. SEALED SAMPLE

6.1 If, in order to illustrate the workmanship, finish, etc., of pilot lead line, a sample has been agreed upon and sealed, the supply

*Methods of physical test for ropes and cordage: Part 2 Mass, length and linear density.

IS : 3262 - 1987

shall be in conformity with the sample in respect of such requirements.

6.2 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

7. PACKING

7.1 Unless otherwise specified, the pilot lead line shall be packed conforming to the requirements laid down in IS : 3256-1980*.

8. MARKING

8.1 Each package in a lot shall be marked with the following:

- a) Name of the material,
- b) Manufacturer's name or trade-mark,
- c) Length of pilot lead line in the package,
- d) Net mass of the package, and
- e) Year of manufacture.

8.1.1 Each package may also be marked with any other marking as required by the buyer.

8.1.2 The package may also be marked with the Standard Mark.

NOTE— The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or processors, may be obtained from the Bureau of Indian Standards.

9. SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Lot — A quantity of pilot lead line of one definite quality delivered to one buyer against one despatch note shall constitute a lot.

9.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from the lot.

*Code for inland packaging of ropes and cordages (*first revision*).

9.3 Sample Size—Sampling shall be as representative as possible of the lot subjected to measurements and tests. Samples shall be drawn at random at the rate shown by the following formula:

$$S = 0.4 \sqrt{N}$$

Where S is the number of pilot lead lines selected as samples and N is the size of the lot expressed as a number of 55 m length, pilot lead lines.

Where S as calculated is not a whole number, round off the value obtained to give a whole number in accordance with IS : 2-1960*. In cases where S is less than 1, draw one sample coil.

9.4 Criteria for Conformity—The lot shall be declared as conforming to the requirements of the standard, if the following conditions are satisfied:

- a) From the observed values of linear density and circumference average (\bar{X}) and the range (R) are calculated and the values of the expression ($\bar{X} + 0.4 R$) and ($\bar{X} - 0.4 R$) lie within the specified limit.
- b) From the observed values of breaking strength, the average (\bar{X}) and the range (R) are calculated and the value of expression ($\bar{X} - 0.4 R$) is greater than or equal to the specified value.
- c) From the observed values of pitch, the average (\bar{X}) and the range (R) are calculated and the value of the expression ($\bar{X} + 0.4 R$) is less than or equal to the specified value.
- d) None of the samples tested for length and change in length is found non-conforming.

NOTE 1 — Average (\bar{X}) is the value obtained by dividing the sum of the observed values by the number of tests.

NOTE 2 — Range (R) is the difference between the maximum and minimum in a set of observed values.

*Rules for rounding off numerical values (*revised*).

APPENDIX A

(Clause 5.2)

METHOD FOR DETERMINATION OF CHANGE IN LENGTH

A-1. PROCEDURE

A-1.1 From each test sample (*see* 9.3), cut off a piece approximately 2 m in length. Mark the piece so that one can be identified with the other.

A-1.2 Take one piece and apply to it a tension equal to 2 percent of the breaking load specified in Table 1 (that is, 5 kg weight).

NOTE — The tension can be applied by fixing one end of the piece to a peg, running the piece over a pulley and hanging a weight equal to 5 kg at the other end.

A-1.3 While the sample piece is under tension, place two gauge marks on it, exactly one metre apart.

A-1.4 Suspend the piece with 5 kg weight in a vessel full of water in such a way that the marked portion of the line remains well under water and the 5-kg weight tied to the lower end does not touch the bottom of the vessel (*see* Fig. 1). Keep the piece suspended in water for 48 hours. After this period take out the piece. Remove the 5 kg weight. Condition the piece to moisture equilibrium in a standard atmosphere (*see* 3.1) for 48 hours.

A-1.5 Take the piece and again apply a tension equal to 5 kg weight (*see* Note under A-1.2). While the piece is under tension, measure the distance between the gauge marks.

A-2. CALCULATION

A-2.1 Calculate the percentage of change in length by the following formula:

$$C = \frac{l_1 - l}{l} \times 100$$

where

C = change in length in percent;

l_1 = length, in mm, between the gauge marks after suspension in water; and

l = length, in mm, between the gauge marks before suspension in water.

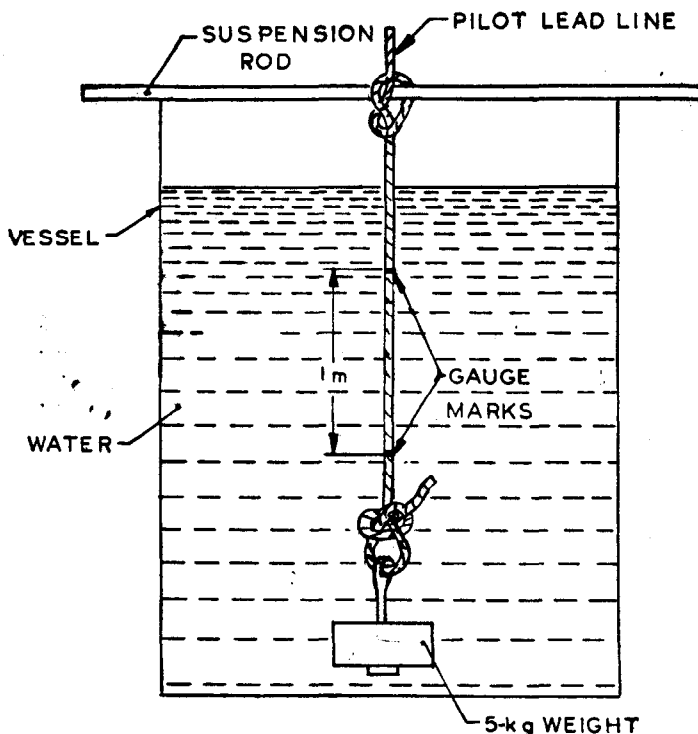


FIG. 1 METHOD OF SUSPENDING THE LINE FOR TESTING CHANGE IN LENGTH

A-2.2 Report the sample to be conforming in respect of change in length if the value obtained in **A-2.1** is not more than 0.7.

A-2.3 Similarly, test the remaining test samples.

A-2.4 Report the lot to be in conformity with the requirements of 5.2 if the condition laid down in 9.4(d) is satisfied.

APPENDIX B

(Table 1)

METHOD FOR DETERMINATION OF BREAKING LOAD

B-1. APPARATUS

B-1.1 Rope tensile testing machine of appropriate capacity with constant rate of traverse of the straining head of not less than 150 mm per minute or greater than 305 mm per minute.

B-2. PROCEDURE

B-2.1 Test By Ordinary Grips — Mount each specimen with an initial length of not less than 1 m between the grips of the testing machine. Apply gradually and continuously increasing load until the specimen breaks. If fracture occurs at or near the grips at less than the specified breaking load, disregard the test and take a further test. Accept the test results corresponding to any specimen that fractures through causes attributable to grip damage as meeting the requirements of the specification provided that the load recorded is not less than 95 percent of the minimum specified breaking load.

B-2.2 Test the remaining specimens similarly.

B-2.3 Report the lot to be in compliance with the requirements of 5.3 in respect of breaking load if the condition laid down in 9.4 (b) is satisfied.

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